

PHY 142 Introductory Physics II

Syllabus

Instructor: ***Sheng-Chiang (John) Lee***

WSC 114, 478-301-2599

Office Hours: MF 2:30PM ~ 4PM; TR 10AM ~ 11AM

Co-requisite: PHY 142L; Pre-requisite: PHY 141 or equivalent

Textbook: ***Physics***, 2nd edition, by James S. Walker

Course Description:

This course is the second of a 2-semester algebra-based introductory physics sequence. It serves as an introduction to the field of physics, which is a foundation of other scientific disciplines. Although physical principles can/will be demonstrated in the class conceptually, they are all formulated through mathematical expressions. Therefore, students' performance in this aspect will influence the grades significantly. Students who take this course should be fluent in algebraic manipulations, trigonometry, and power/logarithmic functions.

The topics covered in this class include:

Waves and Sounds, Optics, Electricity and Magnetism, Atomic Physics, Quantum Physics, and Nuclear Physics.

Students should also take PHY142L, which is the laboratory counterpart of this course.

Objectives:

After taking this course, you are expected to

- Be familiar with the common scientific terminologies (e.g. charges, currents, voltages, electric and magnetic fields, etc.) and the units associated with these new quantities.
- Develop reasonable physical intuitions and be able to qualitatively understand simple physical systems and predict their behaviors.
- Be able to apply scientific logic to solve physical problems analytically and quantitatively.

Grading Methods:

Grading Scale:

Score:	90+	85~89	80~84	75~79	70~74	60~69	59-
Grade:	A	B+	B	C+	C	D	F

Grading Components:

	Homework assignments	WebCT Quizzes	In-Class Quizzes	Exams (3 mid-terms + 1 final)
Weight:	25%	5%	10%	(15+15+15+15=60)%

Weekly homework assignments will be given normally once a week and due in a week at the beginning of the class, unless announced otherwise. The assignments should be neatly written (or typed if you want). There will be about 5 problems in each assignment, and 2 of these problems will be graded. Some of the questions involve substantial problem solving skills (denoted by PS), in which you should state your scientific logic to explain why you apply the specific formula/equation. PS questions are graded in the following way.

1. Correct logic + correct formulae/equations + correct answer = 100%

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2. Correct logic + correct formulae/equations + wrong answer (calculation error) = 80%
3. Correct logic + incorrect formulae/equations + wrong answer (you shouldn't get right answer) = 50%
4. Incorrect logic (but you try hard) + incorrect formulae/equations + wrong answer (you shouldn't be able to have correct formulae/equations nor answers with incorrect logic) = 20%
5. No or very minimum efforts shown in solving the problem = 0%

You are encouraged to discuss these assignments among yourselves, and even more welcome to discuss with the instructor. However, the turned-in assignments must be original, in compliance with the **University Honor Code**. Any types of copying other's work are considered cheating and **will be** reported to the Honor Council. Late assignments will receive 0 point unless legitimately excused.

WebCT Quizzes are mostly conceptual questions and will be given randomly through WebCT. The purpose of these quizzes is to let you show your concepts about the materials, so that the instructor might teach more efficiently. The quizzes will be posted on WebCT few days before a class, and you will be notified about it. The quizzes are due at the midnight (12am) before the corresponding classes. There will be **NO** make-up quiz available. If you miss a quiz, you will receive 0 point for the quiz unless you are legitimately excused.

In-Class Quizzes are working problems taken directly from the textbook content of corresponding assigned readings. All quizzes will be announced in the previous class, and **NO** make-up quizzes are available for unexcused absence or late for a class.

Exams are inevitably **accumulative**, since physics is an accumulative knowledge. You can not master more advanced topics without being fluent with the basics. However, exams will concentrate on the content covered in the corresponding periods, unless otherwise specified. All exams will be close-book. **A formula sheet will be provided**, and you should only bring your pen/pencil, calculator (no graphical functions), the formula sheet, and your knowledge of physics to the exams. **No** make-up exams are available unless you are legitimately excused.

Important Dates:

Last Day for Course Withdrawal: 3/23!!!!

Class Policies:

Attendance Policy: Attendance is not mandatory. However, students are solely responsible for learning the materials covered in the missed classes.

Honor Code: You are bound by the Mercer honor code. The College's academic misconduct policy will be followed. All work, for which a grade is received, must be the **original** work of the **student** without aid or assistance of another party, or any printed and or electronic data/information. Academic misconduct cases will be referred to the honor council and the student will automatically receive a grade of incomplete (IC) pending a ruling by the honor council.

Cell Phone and Pager Usage: Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be **TURNED OFF** before entering any classroom, lab, or formal academic or performance event.

Documented Disability Statement: Students with a documented disability should inform the instructor at the close of the first class meeting. The instructor will refer you to the office of Student Support Services (SSS) for consultation regarding evaluation,

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documentation of your disability, and recommendations for accommodation, if needed. Students will receive from SSS the *Faculty Accommodation Form*. On this form SSS will identify reasonable accommodations for this class. The form must be given to the course instructor for signature and then returned to SSS.

To take full advantage of disability services, it is recommended that students contact the Office of Student Support Services, immediately. The office is located on the third floor of the Connell Student Center.

Tentative Course Schedule

Week	Topic	Required Reading
1/09 – 1/12	Waves & Sounds	Ch14
1/16 – 1/19	Superposition & Interference	Ch14 & Ch28
1/22 – 1/26	Physical Optics – Light as waves	Ch28
1/29 – 2/02	Electric Charges & Fields; 1st Exam	Ch19
2/05 – 2/09	Electric Field, Potential & Energy	Ch20
2/12 – 2/16	Electric Potential & Capacitors	Ch20 & Ch21
2/19 – 2/23	Capacitors, Resistors & DC Circuits	Ch21
2/26 – 3/02	Magnetism; 2nd Exam	Ch22
3/05 – 3/09	Spring break	
3/12 – 3/16	Magnetic Field & Force	Ch22
3/19 – 3/23	Magnetic Flux & Faraday's Law	Ch23
3/26 – 3/30	Inductance, Magnetic Energy, AC Circuits	Ch23 & Ch24
4/02 – 4/05	AC Circuits & Electromagnetic Waves	Ch24 & Ch25
4/09 – 4/13	Quantum Physics – Light as particles; 3rd Exam	Ch30
4/16 – 4/20	Atomic Physics	Ch31
4/23 – 4/27	Nuclear Physics	Ch32
5/04	Final Exam 9:00am ~ 12:00pm	